

# Artificial Intelligence Authoring Financial Recommendations: Comparative Australian Evidence

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## ABSTRACT

This article explores the use of artificial intelligence software to create financial recommendations. It seeks to define the impacts and outline the benefits of using ChatGPT software in the highly regulated Australian financial sector. ChatGPT was asked to create a financial recommendation, which was evaluated against the relevant regulations and the recommendations of existing professionals and market contributors. The data generated was analysed using Qualtrics analysis techniques. The findings suggest that ChatGPT significantly reduces the time required to carry out creation, input, and editing services for simple financial advice recommendations. However, ChatGPT fails to operate effectively with complex financial advice and requires professional guidance to ensure regulatory adherence. In future, it may be possible to develop ChatGPT as a complementary tool to decrease the time and cost required to create financial recommendations.

**KEYWORDS:** ChatGPT, artificial intelligence, financial recommendation, regulation

## I. INTRODUCTION

Given global pandemic operating conditions and the emerging availability of artificial intelligence (AI) capabilities, significant disruption has been felt within the financial sector. Due to changing consumer expectations, the sector has been seeking to innovate its offerings attempting to increase competitiveness and develop into a recognized profession.<sup>1</sup> Opportunities now exist surrounding the investigation of how AI might be used to create the content required for financial recommendations and measure whether impacts are significant, as found through research in service fields of education and healthcare.<sup>2</sup> The AI content creation tool ‘Chat Generative Pre-Trained Transformer’ (ChatGPT) was released to the public in November 2022.

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<sup>1</sup> B Neilson, ‘Progress towards Recognised Professional Status: The Australian Financial Planning Landscape in 2022’ (2022) 12 *International Journal of Economics and Financial Issues* 21.

<sup>2</sup> M Garbuio and N Lin, ‘Artificial intelligence as a growth engine for health care startups: Emerging business models’ (2019) *California Management Review* 59; MR King and chatGPT, ‘A Conversation on Artificial Intelligence, Chatbots, and Plagiarism in Higher Education’ (2023) 16 *Cellular and Molecular Bioengineering* 1.

ChatGPT generates explanatory sentences, resulting in conversational responses from various data inputs, which can be used to generate content and potentially reduce the time and cost of addressing consumer needs in practical settings. ChatGPT is a significant development in the Australian financial sector as it may be positioned to add to ongoing sector debates surrounding financial literacy, costs, and compliance of creating financial recommendations. The research explores how ChatGPT may be used to create financial recommendations and compares the results to traditional creation methods. At present, traditional methods involve outsourcing recommendation creation to specialized personnel which increases the time taken, communication requirements, and costs of creating financial recommendations.

The focus of this article is on cost, time, and regulatory adherence when preparing a recommendation to evidence the impact of AI on the accessibility of financial advice. ChatGPT was asked to create a superannuation contribution recommendation to evidence the potential impacts of use. ChatGPT was then asked to evaluate financial recommendations from four of the largest Australian financial advice providers against its own. ChatGPT was asked to identify the important legislation and Regulatory Guides surrounding recommendation disclosure requirements, which were manually checked for adherence. The research sought qualitative data input from 53 sector participants, on which Qualtrics analysis was applied surrounding the effects of AI content recommendation.

To understand how ChatGPT may impact creation of financial recommendations, this study was determined by three research questions:

- 1) What role might ChatGPT play when creating financial recommendations?
- 2) What impact(s) may ChatGPT present when preparing financial recommendations?
- 3) How might ChatGPT be positioned to reduce barriers to accessing financial advice?

Research offers unique contributions to Australian financial planning literature by examining how AI innovations may offer benefits through use. Specifically, this study assessed creation time, content analysis, and regulatory adherence capabilities. This study may be the impetus to review content creation arrangements, with results evidencing possible reduction of barriers to accessing financial services. This research holds significant weight as it contributes evidence to ongoing debates surrounding financial advice creation time, creation costs, and document size. AI innovations may assist in developing Statement of Advice (SOA) documents and repositioning financial advice offerings to cater to evolving consumer needs.

## II. LITERATURE REVIEW

Research shows<sup>3</sup> that when creating financial recommendations challenges exist surrounding the time and complexity required to compile the necessary information. Traditional recommendations often hinder consumer comprehension, value, and trust,<sup>4</sup> due to their size and language. There are ongoing debates regarding the best way to address the increasing gap between consumer expectations, cost to access, and regulatory adherence in the finance sector. An integrative review of financial services law<sup>5</sup> outlines that the financial sector is seeking technological developments to become more competitive,<sup>6</sup> while navigating the numerous legal

<sup>3</sup> T Baker and B Dellaert, 'Regulating robo advice across the financial services industry' (2017) 103 *Iowa Law Review* 713; I Lee and YJ Shin, 'Fintech: Ecosystem, business models, investment decisions, and challenges' (2018) 16 *Business Horizons* 35.

<sup>4</sup> M Cull and T Sloan, 'Characteristics of trust in personal financial planning' (2016) 2 *Financial Planning Research Journal* 12.

<sup>5</sup> P Singh, L Arora and A Choudhry, 'Consumer Behavior in the Service Industry: An Integrative Literature Review and Research Agenda' (2023) 15 *Sustainability* 250.

<sup>6</sup> G Phung, H Truong, and HH Trinh, 'Determinants in the Development of Financial Centers: Evolution Around the World' in S Kim (ed), *International Finance Review Vol 22, Fintech, Pandemic, and the Financial System: Challenges and Opportunities* (Emerald Publishing 2023).

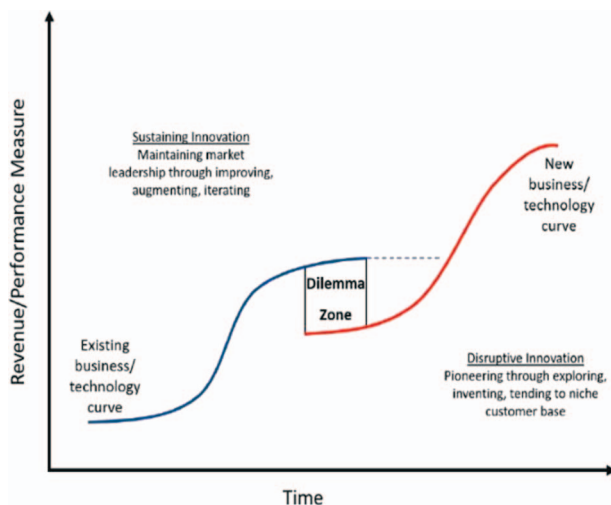


Figure 1. Outline of Innovator's Dilemma, \*The Innovator's Dilemma Visual.

complexities. This phase has been described as the 'innovator's dilemma',<sup>7</sup> where technologies are applied in an evolutionary sense to address problematic areas (see Figure 1).

Due to the ongoing developments in AI, research can apply these options in unique conditions to understand practical impacts. Dowling and Lucey<sup>8</sup> outline how ChatGPT assisted with their finance research process, finding that the technology assisted with the process, summarized research domains, and assisted in determining the quality of the research output.

We have seen AI technologies are being introduced in the field of law to draft and review content,<sup>9</sup> and in banking,<sup>10</sup> to identify client data and summarize reports, with great success. AI is being increasingly adopted in professional settings due to its improved risk management, fraud detection, customer service, and compliance capabilities.<sup>11</sup> Ongoing AI development may facilitate a deeper understanding of the compliance requirements of multilevel financial advice recommendations.<sup>12</sup> AI is able to assist compliance-related tasks surrounding the provision of financial advice against expected regulations and codes of ethics.<sup>13</sup> However, the extent of the impacts of using AI to create financial recommendations in the Australian field are currently unknown.

### III. METHOD

This research focused on the topic of superannuation contributions and input content from 28 existing SOA documents as a means of creating an internal literacy-based control group.

<sup>7</sup> C Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Harvard Business Review Press 2016).

<sup>8</sup> M Dowling and B Lucey, 'ChatGPT for (finance) research: The Bananarama conjecture' (2023) *Finance Research Letters* 103662.

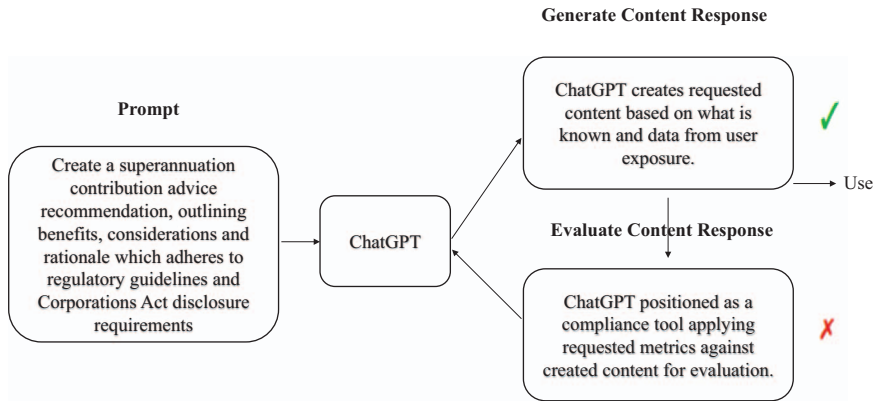
<sup>9</sup> K Atkinson, T Bench-Capon and D Bollegala, 'Explanation in AI and law: Past, present and future' (2020) 289 *Artificial Intelligence* 103387.

<sup>10</sup> T Boobier, *AI and the Future of Banking* (John Wiley & Sons 2020).

<sup>11</sup> S Chowdhury and others, 'Unlocking the value of artificial intelligence in human resource management through AI capability framework' (2023) 33 *Human Resource Management Review* 100899.

<sup>12</sup> P Southehal, *Data Quality: Empowering Businesses with Analytics and AI* (John Wiley & Sons 2023).

<sup>13</sup> S Sujee, R Solanki and T Dalwai, 'Technology Innovations for Business Growth—Impact of AI and Blockchain on Financial Services' in *International Conference on Business and Technology* (Springer 2023).



**Figure 2.** ChatGPT Self-Evaluation Methodology.

Qualtrics analysis was used to evaluate recommendation content between groups (control, external market, and ChatGPT based) and applied a manual assessment against the mandatory sections of the Corporations Act 2001 (Cth)<sup>14</sup> and Regulatory Guides (RG). ChatGPT was able to develop its education surrounding recommendation language and form content expectations. The author asked ChatGPT to create a superannuation contribution recommendation.

Specifically, the research followed three steps:

(i) ChatGPT was asked to create the content required to recommend an A\$10,000 non-concessional contribution to superannuation. Time was recorded for comparison.

(ii) ChatGPT was asked to evaluate its content recommendation against content created by four external providers (28 recommendations each) using the categories of clarity, accuracy, and persuasiveness as qualitative metrics.

(iii) Researchers then manually assessed ChatGPT content against legal disclosure requirements.

The author created a self-evaluating content tool, which assesses content compliance and builds its subject knowledge (see [Figure 2](#)).

#### IV. RESULTS AND CONTENT ANALYSIS

[Figure 3](#) compares the mean content creation time between content creation groups. It includes time in hours compared against the median hourly charge of A\$285 as control variables. The results for ChatGPT record significant implications surrounding reduction of creation times and costs, which is important in order to reduce the price of financial advice and increase adviser serviceability.

Evaluating qualitative data adopted the research evaluation framework findings of Susnjak<sup>15</sup> for analysis. Qualtrics identified categories of clarity, accuracy, and persuasiveness concerning the language impacts of each group. The research sought qualitative input on recommendations from (i) six female and eight male practising financial advisers, aged between 45 and 60, located in Bundaberg, Queensland, Australia; (ii) 14 female and 17 male active financial advice clients, aged between 45–60, located in South-east Queensland, Australia; (iii) eight compliance

<sup>14</sup> Corporations Act 2001 (Cth); Corporations Amendment (Professional Standards of Financial Advisers) Act 2017 (Cth); Financial Planners and Advisers Code of Ethics 2019, Financial Adviser Standards and Ethics Authority <<https://www.fgsls.gov.au/Details/F2019L00117>>.

<sup>15</sup> T Susnjak, 'ChatGPT: The End of Online Exam Integrity?' (2022) arXiv preprint, available at arXiv:2212.09292.

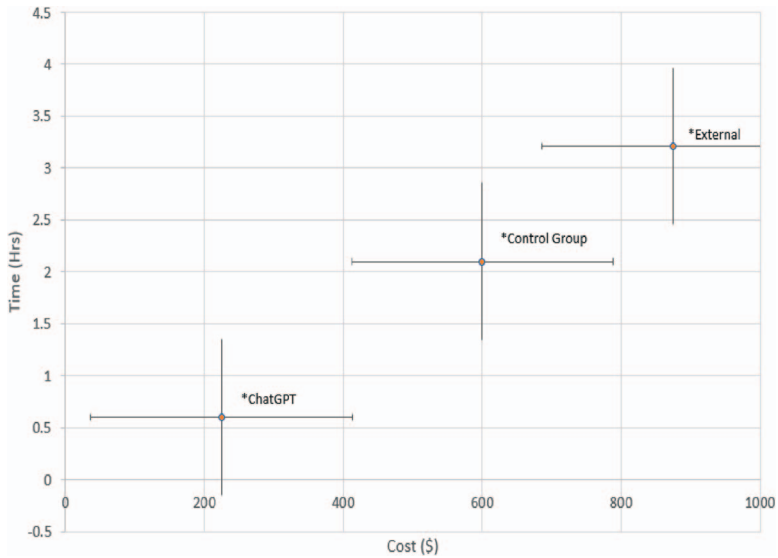


Figure 3. Content Creation Comparison Analysis.

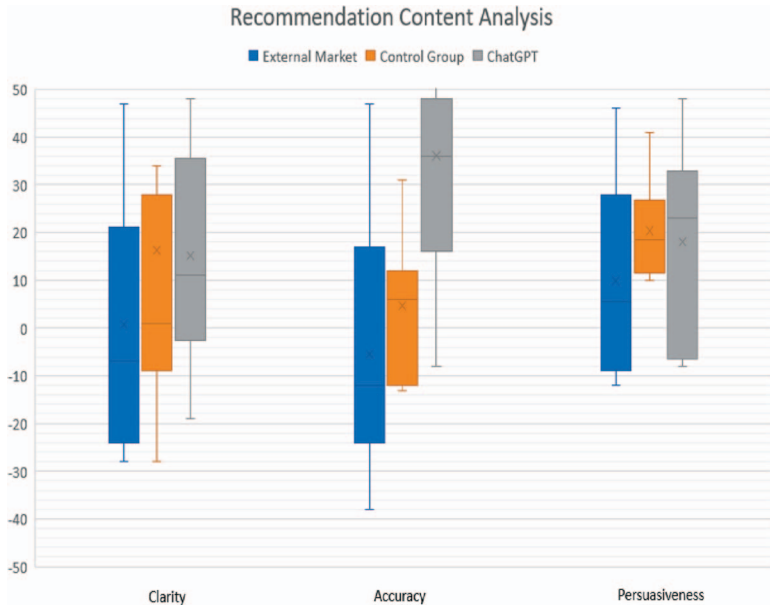


Figure 4. Metric Content Analysis—Box-Whisker plot of responses.

managers who were actively employed at the four largest Australian financial advice licensees, with head offices in Sydney, Melbourne, Brisbane, and Maroochydore, Australia.

Content was applied against the Elaboration Likelihood Model (ELM) theory for analysis. The central route of recommendation content was assessed by use of language to evidence whether ELM models suggest that the content supports decision-making attributes using the measurements of clarity, accuracy, and persuasiveness for credibility (see Figure 4).

**Table 1.** Content Adherence—Corporations Act 2001

Corporations Act 2001	ChatGPT Content	Rationale
Section 947C (1–6)	✓	Achieved
Section 947D (1–4)	✓	Achieved
Section 949B (1–4)	✓	Achieved
Section 961B (1–5)	✓ & ✗	Application of judgement
Section 961D	✓	Achieved
Section 961G	✓ & ✗	Application of judgement
Section 961H	✗	Inability to assess
Section 961J	✓	Achieved
Section 961L	✓	Potential to replace natural persons
Section 994B & E	✗	Inability to assess

### Professional Evaluation

ChatGPT was able to locate and adhere to most sections of the Corporations Act but was unable to identify potential implied inclusions based on a limited understanding of personal circumstances outside of the scope of data input.

Legal implications require the identification of objectives, understanding of financial situation, and best interest financial recommendations.

961B (1–5) *Best Interest Duty* (Cth), ChatGPT currently fails to understand the practical application of this law due to its limited knowledge surrounding personal circumstances. ChatGPT is unlikely to adhere to s 961B without significant future development and integrated software use as there are aspects of the clients' lives that must be input to the technology to increase its awareness of consumer actions; more research is required in this area.

961H *Advice Based on Incomplete Information* (Cth), ChatGPT fails to cater for the capacity to assess whether it possesses complete or inaccurate information. Aspects of compliance may be rendered null with a mandatory warning; however, it is unusual to reach the recommendation section of financial advice without obtaining complete and accurate client data per standards four, five, and six of the Financial Planners and Advisers Code of Ethics (2019) obligations. Usually section adherence is evidenced by the client file and not purely the SOA document; as such the findings have been noted to avoid future issues, but are not listed as imperative at this stage of the financial recommendation process.

994B & E *Target Market Determination* (Cth), usually applicable concerning investment and product advice, ChatGPT cannot assess the associated adherence due to lack of access to investment decision information issues. As the research relied on the free version of ChatGPT, it was unable to source information past 2021. Further, due to its limited subscription knowledge, it cannot conduct reasonable steps and adhere to product distribution conduct requirements as these were released in 2022—we discuss further in the limitation section.

These findings are important to note as, due to ChatGPT development (which are currently being addressed via the release of ChatGPT Plus), professional guidance will always be required in order to review and ensure financial recommendations meet regulatory requirements and avoid penalties for misconduct. The current ChatGPT version made navigating a very large and complex legal document easy and was able to identify relevant properties quickly and accurately.

Researchers applied ChatGPT content against required disclosure sections of the Corporations Act. [Table 1](#) outlines whether the section was achieved, with associated rationale.

Researchers applied ChatGPT content against available Regulatory Guides. [Table 2](#) outlines whether guide content was achieved, with associated rationale.

**Table 2.** Content Adherence Regulatory Guides

ASIC Regulatory Guide	ChatGPT Content	Rationale
RG 90	✓	Achieved
RG 168	✓	Achieved
RG 175	✓	Achieved
RG 221	✓	Achieved
RG 244	✓	Achieved
RG 255	✗	Subjective of method

### Professional Evaluation

Professional evaluation of content proved adherence to the well-known regulatory guides.

RG 255 Providing digital financial product advice, limits the delivery of unregistered 'relevant providers' (921Y) without a registered sub agreement (924A non-licensee) requiring a variation to financial licence conditions (797A) subject to regulatory approval (794C) (Cth). ChatGPT is currently unable to understand these associated legal implications due to a lack of professional experience and judgement.

We discuss the implication of these limitations in the later stages of the research.

## V. DISCUSSION

Based on the findings of this research, ChatGPT possesses beneficial roles and practical impacts when creating financial recommendations. Its ability to create simple recommendation content far exceeds human capabilities regarding response time, content accuracy, and language processing skills. However, issues arise with complex financial recommendations and complete regulatory adherence. ChatGPT requires significantly less time to create content, compared against traditional methods of financial recommendation creation, which gives the potential to reduce the cost and time requirements of preparing recommendations. Through continued use, the level of complexity of ChatGPT's output grew, supporting a potential evolutionary framework. ChatGPT began to use the sector jargon, which is useful for learning and language processing skills. ChatGPT content recorded elevated levels of language clarity, accuracy, and persuasiveness. A fascinating capability surrounds the continued use of self-evaluation, including recognition and acknowledgement of systemic change, such as tax tiers, superannuation cap amounts, and the introduction of regulatory guides.

The unique self-evaluation feature offers significant advancements in the field of compliance and reduction of human error, as the technology begins to acknowledge content shortfall and can draw attention to areas that may leave recommendations vulnerable to challenge. The counterview to the use of AI suggests that users may become too reliant and that it may lead to a bias towards certain types of language or ideas. Additionally, users may rely too heavily on technology for compliance, which could lead to a lack of accountability or responsibility.

ChatGPT successfully located mandatory sections of the Corporations Act and Regulatory Guides primarily due to contextualized user prompts. It wrote content surrounding strategy recommendations with high levels of accuracy but failed to understand the entire regulatory requirements of an SOA; more research is required to determine whether the larger levels of consumer data may be input to ChatGPT so it is able to assess whether recommendations can further address sections of required legislation to assist compliance requirements. ChatGPT may be beneficial to reduce barriers to accessing financial advice through cost reduction,

regulatory adherence, and improved response times. Qualitative data findings identified themes such as ‘essential, simple and progressive’, which echo findings in other service industries such as ‘overwhelming excitement and limited concerns’.<sup>16</sup> Reservations surround ethical considerations in the form of operational intent, trust, and future cost to access software services. Due to the size and complexity of regulatory requirements, AI software is unlikely to completely replace financial advisers primarily due to the professional knowledge, responsive themes, and emotional support abilities that a financial adviser may yield.

There is significant scope for further development opportunities given that ‘the law is technology neutral’<sup>17</sup> on technological innovations. The need for continued professional judgement and financial guidance is evident, given the implied legal implications between regulatory codes of conduct. This research suggests that ChatGPT use could be an important addition. It need not replace professionals but could significantly complement current financial recommendation offerings, for example regarding content homogeneity.

## VI. LIMITATIONS

Due to underlying intersections between legal and personal complexities, key limitations are presented within the scope of this research, such as the small sample size of research participants. AI innovations operate on responsive technologies, and as such the quality of the content depends heavily on the language and intent of any user input.

ChatGPT is unable to access data sources that were released after 2021 and will thus, ask further questions to increase the accuracy of its responses. It is beneficial to contextualize the external environment before requesting specifics (for example, the research introduced financial recommendations by the outlined context surrounding Superannuation > Australian Tax System > Concessional and Non-concessional contribution limits > Mandatory disclosure requirements for superannuation contributions). When specific questions are sought with limited context, content responses differ, often becoming unhelpful and repetitive.

Although elements are factually accurate, the current version of ChatGPT is unable to assess existing actions taken which may impact the content which it has written. Regarding our research request ChatGPT was unable to assess whether contributions had been made previously and as such, was unable to quantify what impact(s) a A\$10,000 contribution to superannuation might have on the non-concessional cap or its further adherence with RG 90, 168, 175, or 244 (ASIC 2012; 2017; 2021; 2022) or sections 949B, 961B, 961D, and 961H of the Cth. Limitations were also evident concerning superannuation balance and age requirements surrounding consumer specifics; professional judgement is imperative. The implied scope of advice may also present challenges due to different financial licensing requirements.

Data transfer, security, and trust are concerns when integrating with existing software systems for harmonious, continued use. These concerns surround ownership of content, professional use, and the implications of breaches concerning client data.

Due to the need for prompts, ChatGPT can only ever provide responsive support. It falls short of the emotional support that traditional financial advice relationships are built on. However, its development and inclusion in the current research evidence significant benefits and yields the potential ability to impact and disrupt future financial advice recommendations. While the self-evaluation feature may be able to identify areas for improvement, it may not necessarily address the root causes of compliance issues or ensure that appropriate corrective action is

<sup>16</sup> MU Haque and others, “‘I think this is the most disruptive technology’: Exploring Sentiments of ChatGPT Early Adopters using Twitter Data” (2022) arXiv preprint, available at arXiv:2212.05856.

<sup>17</sup> Australian Securities & Investments Commission 2016, ‘Regulatory Guide 255: Providing digital financial product advice to retail clients’ <<https://download.asic.gov.au/media/vbnlotqw/rg255-published-30-august-2016-20220328.pdf>> accessed 28 March 2023.



taken. Since this research was undertaken, updated versions of ChatGPT have been released which allow the user access to additional features such as updated data sources, improved awareness, and the ability to design tasks. Given the low cost to access this tool (currently US\$20 per month), it seems likely that ChatGPT will be used when designing tasks and workflows surrounding financial recommendations, to ensure compliance measures have been met, in the future. However limitations also surround the unknown cost of continued use of ChatGPT technologies in the future.

## VII. CONCLUSION

This research explores the impacts and potential roles that ChatGPT may offer when creating content for financial recommendations. Namely, it identifies a reduction of creation time, additional regulatory support, and self-evaluation tool impacts as the most beneficial attributes to the financial sector. ChatGPT was asked to create the content needed for financial recommendations and evaluate its content against recommendations from exiting sector participants. Although it was not asked to assess complete regulatory adherence, it managed to identify key areas of risk for further consideration. Its recommendations proved to be superior to those sector participants created through traditional methods. These impacts are important as they assist in defining the positioning role of AI moving forward. ChatGPT was able to reduce the time and costs associated with creating financial recommendations which may have significant impacts to the Australian financial sector. This research has identified potential ethical, process, and recommendation limitations that need further assessment and development before wide-reaching use. ChatGPT use offers significant benefits for content creation with emerging roles surrounding compliance, task, and workflow developments. ChatGPT possesses benefits that may contribute to reducing barriers to accessing services if applied appropriately. Future research should further explore means of mitigating ethical and practical considerations as well as creating a clear point of introductory reference as to measure progress.

Overall, this research demonstrates the abilities of AI in professional practice; it provides valuable insights into potential capabilities and aims to advance the financial literature. It is essential that innovations are investigated, in order to assist in developing or reviewing assumed best practices and to offer contributions to advance the sector.